Course Description Form

1. Course Name:
Hospital systems and design
2. Course Code:
WBM-51-07
3. Semester / Year:
Semester
4. Description Preparation Date:
2025−12−11
5. Available Attendance Forms:
presence in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
30 Hours / 2 Units
7. Course administrator's name (mention all, if more than one name)
Name: Natiq A. Omran Email: nataq.az@uowa.edu.iq
8. Course Objectives

Course Objectives	To increase student knowledge in the field of designing hospitals and recent trends associated with developing hospitals concerning general and specialized buildings, gardens, waiting areas, traffic routes, ventilation system, safety, etc… To enable him from dealing with different future modifications about adding additional departments or medical devices.
9. Teaching and Learning Strategies	
Strategy	1- Making the student able to demonstrate real knowledge of hospital systems and design concepts during the academic level and their applications. 2- Learn the fundamental hospital departments and their size, medical devices included, ventilation requirements, sterilization procedures, etc. 3- Learn and understand modern solution methods in modification cases.

10- **Module Aims, Learning Outcomes and Indicative Contents**	
Module Aims	1. To develop student knowledge in hospital design principles and modern trends in healthcare facilities. 2. To understand general and specialized hospital buildings, including circulation, ventilation, safety systems, and public areas. 3. To prepare students to plan for future modifications involving new departments or medical equipment. 4. To strengthen the student's ability to apply hospital design concepts in real architectural and biomedical contexts.
Module Learning Outcomes	1. Demonstrate a comprehensive understanding of hospital systems and design principles. 2. Identify the main hospital departments, their functions, required spaces, and associated medical equipment. 3. Explain ventilation, sterilization, and environmental safety requirements in hospital design. 4. Analyze healthcare facility distribution models, including centralization, decentralization, and network hospitals. 5. Evaluate care pathways and spatial organization within hospital departments such as maternity, outpatient, and inpatient areas. 6. Apply evidence-based design concepts to create healing and patient-centered environments. 7. Describe zoning, traffic flow, way finding systems, and the role of public spaces in hospital design. 8. Assess the planning needs of treatment areas including diagnostic imaging, operating theaters, ICUs, and emergency departments. 9. Examine global case studies of general, children's, and university hospitals to identify best design practices. 10. Propose solutions and modifications to hospital layouts for future needs or new technologies. 11. Integrate modern design strategies to enhance patient safety, workflow efficiency, and environmental comfort. 12. Apply theoretical hospital design knowledge to real-world architectural or biomedical scenarios.
Indicative Contents	1- Circuit Theory of Healthcare Architecture: definitions, spatial relationships, and functional planning. 2- Hospital design approaches: centralization vs. decentralization, networked healthcare systems. 3- Evidence-Based Design for healing environments. 4- Public spaces: circulation systems, entrances, wayfinding, waiting areas, gardens, and patient-centered zones. 5- Treatment areas: outpatient clinics, inpatient wards, operating theaters, imaging units, ICU, emergency department, and laboratories

11−Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1 +2+3	4	Introduction	Defining the hospital, the Perspective of the Patient, Healthcare as a Public Service, T Business Case for Hospitals, Changing Healthcare Needs.	Lectures presented PDF format	Daily exams + homework assignments + monthly exams
4+5+6	4	DESIGNING HOSPITALS:	Distribution of Healthcare Facilities: Centralization, Decentralization and the Network Hospital, The Design of Hospitals: Care Pathways, Processes and Spaces: The Example of the Maternity Department, Evidence-Based Design for Healing Environments, The Building Type and its Emergence.	Lectures presented in PDF format	Daily exams homework assignments monthly exams
6+7	4	Limits and continuity	Limits: Introduction, limits found numerically and Algebraically, examples. Continuity: Introduction, Examples Evaluating limits at a point: introduction, Examples. Infinite limits: Introduction , Examples.	Lectures presented in PDF format	Daily exams homework assignments monthly exams
8+9	4	PUBLIC SPACES	Zoning and Traffic System, Arrival and Entrance, Public Spaces in and Around the Hospital: Streets, Squares, Patios, Waiting Areas, Healing Gardens, Way finding: Signage and Orientation Systems	Lectures presented in PDF format	Daily exams homework assignments monthly exams
10 +11	4	TREATMENT AREAS	Planning: an Integral Approach, Outpatient Department, Inpatient Wards, Diagnostic Imaging, Operating Theater and Recovery Area, Intensive Care Unit, Emergency Department, Laboratory Department.	Lectures presented in PDF format	Daily exams homework assignments monthly

12	4	GENERAL HOSPITALS Part 1	Circle Bath, Butaro District Hospital Butaro, Rwanda MASS Design Group, Private Hospital, Lille, France Jean-Philippe Pargade Architectes, Extension Kolding Hospital Kolding, Denmark Schmidt Hammer Lassen Architects, AZ Groeninge Kortrijk, Belgium Baumschlager Eberle Architekten Zaans Medisch Centrum.	Lectures presented in PDF format	Daily exams homework assignments monthly
13	4	GENERAL HOSPITALS Part 2	Hôpital Riviera-Chablais, Medisch Spectrum Twente Enschede, Rey Juan Carlos Hospital, Meander Medisch Centrum, Cleveland Clinic Abu Dhabi.	Lectures presented in PDF format	Daily exams homework assignments monthly
14	4	CHILDREN'S HOSPITALS	Nemours Children's Hospital, Randall Children's Hospital, Juliana Children's Hospital, Mother-Child and Surgical Center, Children's Hospital, Royal Children's Hospital.	Lectures presented in PDF format	Daily exams homework assignments monthly
15	4	UNIVERSITY HOSPITALS	Center for Surgical Medicine, University Hospital, Düsseldorf , St. Olav's Hospital, Akershus University Hospital, Reconstruction of the Johann Wolfgang Goethe University Hospital, Erasmus MC Hospital and Education Center	Lectures presented in PDF format	Daily exams homework assignments monthly

12- Course Evaluation

- Daily exams with practical and scientific questions.
- Participation scores for difficult competition questions among students
- Establishing grades for environmental duties and the reports assigned to them
- Semester exams for the curriculum, in addition to the mid-year exam and final exam

13- Learning and Teaching Resources

Required textbooks (curricular books, if any)	Hospital_Design_Guide_How_to_get_started
Main references (sources)	• College library to obtain additional sources for academic curricula • Check scientific websites to see rec developments in the subject
Recommended books and references (scientific journals, reports…)	All reputable scientific journals that are related the broad concept of designing hospitals and th results